CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Gradation/2017-18 12.01.2018

TEST REPORT ON GRADATION OF BITUMINOUS MACADAM MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements to Roads and asphalting at pipeline road right side and other roads in Mllasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/146/2017-18 Dated: 21.12.2017
* Sample ID	:	Road at pipeline road right side Mallasandra Ward No.13
Technical Reference	:	IS:2386 and IRC:SP:11-1984
Date of Testing	:	12.01.2018

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	34.25	7.11	7.11	92.89	90-100
13.2	83.23	17.27	24.37	75.63	56-88
4.75	245.6	50.95	75.33	24.67	16-36
2.36	46.32	9.61	84.94	15.06	4-19
0.3	32.26	6.69	91.63	8.37	2-10
0.075	13.25	2.75	94.38	5.62	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0.00	100	100
19	27.58	5.72	5.72	94.28	90-100
13.2	83.26	17.27	23.00	77.00	56-88
4.75	253.2	52.53	75.53	24.47	16-36
2.36	46.32	9.61	85.14	14.86	4-19
0.3	31.25	6.48	91.62	8.38	2-10
0.075	7.58	1.57	93.19	6.81	0-8

*Information is furnished by the Customer/Representative.

Note:

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⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Agg.G/2017-18 12.01.2018

TEST REPORT ON GRADATION OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements to Roads and asphalting at pipeline road right side and other roads in Mllasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/146/2017-18 Dated: 21.12.2017
* Sample ID	:	Hot Mix Plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	12.01.2018

Total Weight of Sample: **5300** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-4 specification
19	345	6.51	6.51	93.49	90-100	
13.2	1535	28.96	35.47	64.53	56-88	
4.75	1595	30.09	65.57	34.43	16-36	
2.36	965	18.21	83.77	16.23	4-19	
0.3	395	7.45	91.23	8.77	2-10	
0.075	160	3.02	94.25	5.75	0-8	

Total Weight of Sample: **5350** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-4 specification
19	325	6.07	6.07	93.93	90-100	
13.2	1550	28.97	35.05	64.95	56-88	
4.75	1595	29.81	64.86	35.14	16-36	
2.36	985	18.41	83.27	16.73	4-19	
0.3	595	11.12	94.39	5.61	2-10	
0.075	115	2.15	96.54	3.46	0-8	

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T-2377

Job No.: CTCE/BBMP/KRIDL/W.No.13/CSR-01/540/QB(BC)/2017-18 12.01.2018

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Technical Manager (West),** KRIDL, Bangalore.
*** Name of work**	:	Improvements to Roads and asphalting at pipeline road right side and other roads in Mllasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/DD/WO/146/2017-18 Dated: 21.12.2017
*** Sample ID**	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	10.01.2018
Period of Testing	:	10.01.2018 to 12.01.2018

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2014)	64	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2014)	47	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2014)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2014)	308	Min. 220

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VIDYARANI P.K.
Technical Manager

KC-13

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಮಾಗಡಿರಸ್ತೆ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಡಾ|| ಎಂ. ಹೆಚ್. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/AIV/2017-18 12.01.2018

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and asphalting at pipeline road right side and other roads in Mllasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/146/2017-18 Dated: 21.12.2017
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	12.01.2018

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	305	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.59	21.79	**21.69**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Shape.T/2017-18 12.01.2018

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Technical Manager (West),** KRIDL, Bangalore.
*** Name of Work**	:	Improvements to Roads and asphalting at pipeline road right side and other roads in Mllasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/DD/WO/146/2017-18 Dated: 21.12.2017
*** Sample ID**	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	12.01.2018

Sl.No.	Description	Result
1	Flakiness Index	12.15%
2	Elongation Index	13.50%
3	Combined Flakiness & Elongation Index	25.65%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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